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Federal Communications Commission
Office of Engineering and Technology
Policy and Rules Division
Technical Rules Branch

MEMORANDUM

Date: 22 June 1995

To: Secretary

From: Richard B. Engelman *RBEngel*
Chief, Technical Rules Branch/OET

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JUN 22 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Subject: Information to be filed in ET Docket No. 94-124 ✓

Attached is information that should be filed in ET Docket No. 94-124:

- 1) An excerpt of ERC Report 25, published by the European Radiocommunications Committee (ERC) within the European Conference of Postal and Telecommunications Administrations (CEPT), containing the European Table of Frequency Allocations and Utilisations for the frequency bands from 40 GHz to 105 GHz. The complete version of ERC Report 25, covering the frequency bands 960 MHz to 105 GHz, may be obtained from the ERC's permanent European Radiocommunications Office, Holsteinsgade 63, DK-2100 Copenhagen, Denmark (telephone +45 35 43 24 42, fax +45 35 43 35 14).
- 2) A presentation made by representatives of the Ministry of Posts and Telecommunications of Japan to a meeting of government and industry representatives from the US, Europe, and Japan, in May, 1995.

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JUN 22 1995

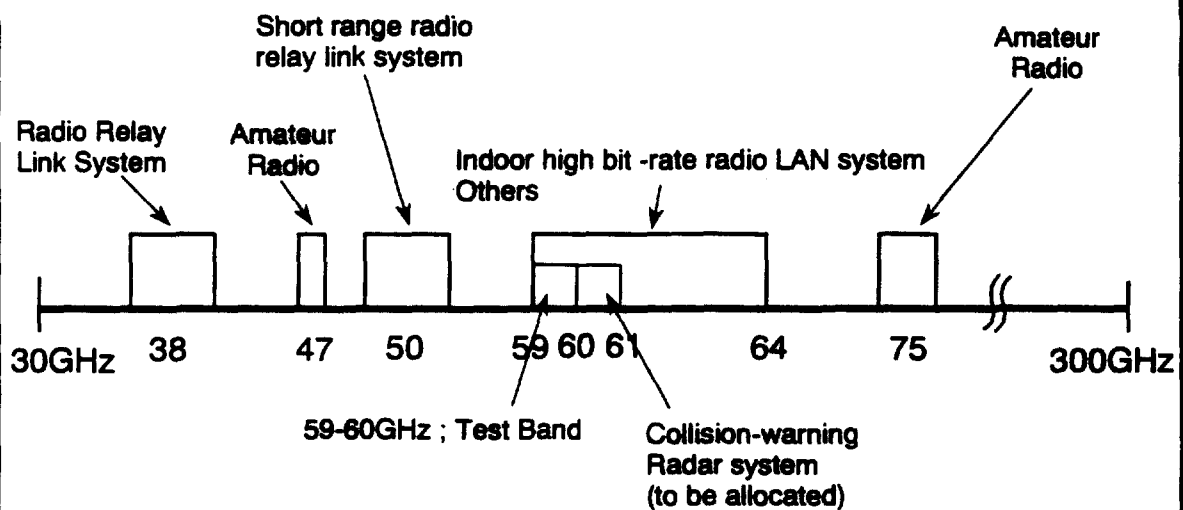
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

FAMOUS '95

Millimeter wave band related activities

May 1995
MPT, JAPAN

Frequency Allocation in millimeter wave band



FAMOUS'95

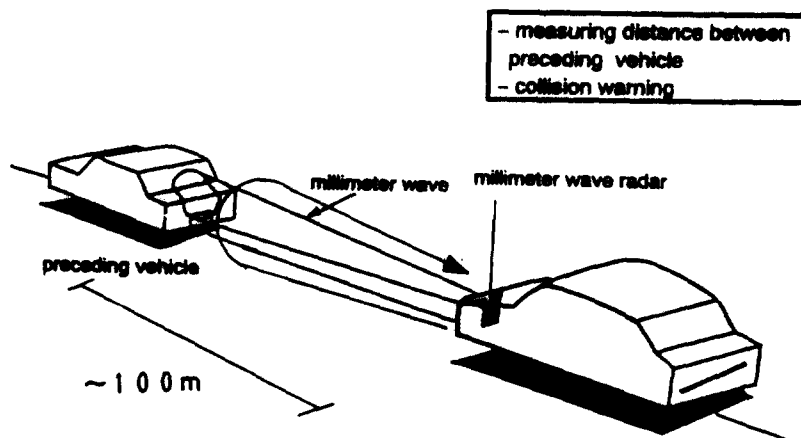
Introduction of Collision-warning Radar System

- Technical requirements for the system using 60GHz decided at the Telecommunications Technology Council in March 1995.
- Now under arrangement of regulation
- Further consideration for the system using other frequency bands.

item	specification
Frequency band	60GHz band (bandwidth 1GHz)
Antenna Power	less than 10mW
Antenna gain	less than 40dB

FAMOUS'95

Collision-warning Radar System



FAMOUS'95

Research & Development activities in CRL

Communications Research Laboratory (CRL) is an institution of MPT.

- Millimeter-Wave Communications Systems in Local Areas

extensive research on key technology

- millimeter-wave indoor multi-path propagation characteristics
- high-speed transmission technology
- antenna technology

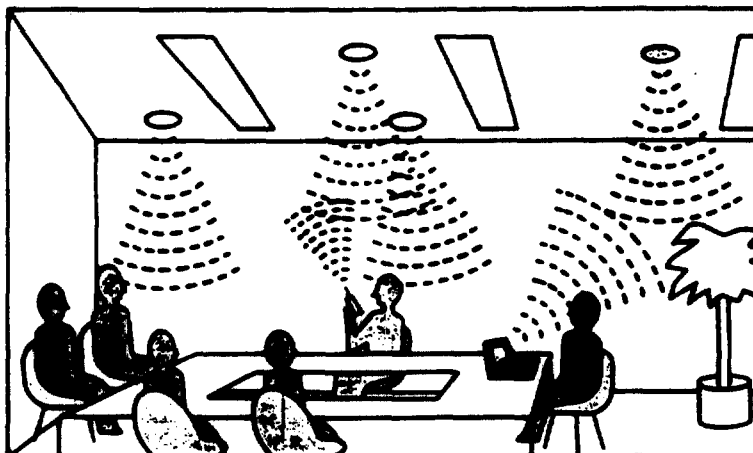
- Millimeter and Submillimeter-Wave Devices and their Applications

development of

- thin film technology for MM- and SubMM- wave device
- new functional devices which operate in MM and SubMM band

FAMOUS'95

Millimeter Band Wave Local Area Communication System



FAMOUS'95

millimeter-wave indoor propagation characteristics

(attenuation, delay, diversity, interference)

high-speed transmission technologies

(countermeasure for multi-path propagation interference and shading)

high-speed data transmission network wireless access technology

Millimeter-Wave Communication Model System in Local Area

(conceptual design) (basic design) (construction of wireless system) (connection to wired system)

Millimeter-Wave Antenna

(flat/parabola antenna, low-loss waveguide system, materials)

Development of Millimeter and Submillimeter-Wave Devices

R&D plan for Millimeter-Wave Communications Systems in Local Area in CRL

FAMOUS'95

Advanced Mobile Satellite Communication Experiment by COMETS

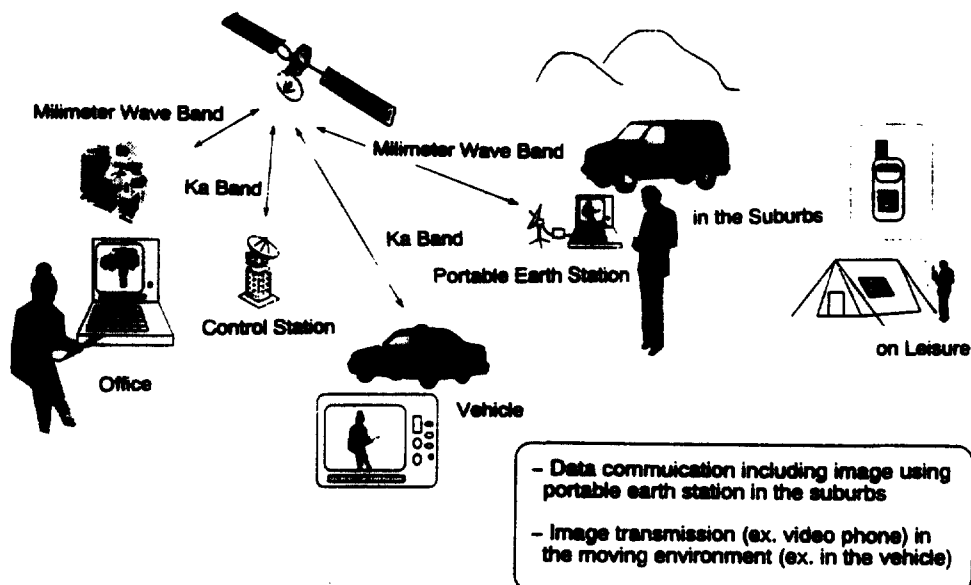
Experiment to encourage R&D

- message and image communication
- multi-beam antenna for Ka and Millimeter Wave band
- Very small portable station with several cm - several 10 cm diameter antenna

COMETS: COMMunication and broadcasting Engineering Test Satellite,
a fixed satellite to be launched in FY1996.

FAMOUS'95

Advanced Mobile Satellite Communication Experiment by COMETS



R&D activities in RCR

- Study Group of Collision-Warning Radar System drafted RCR Standard of the System
- Set up a Study Group of High-Speed and Large-Capacity MM-Wave Radio-LAN System in 1994
- Experimental Studies
 - 1) Propagation experiments
 - 2) Tests of High-Speed Transmission Technologies
 - 3) Antenna Technologies
- Drafting RCR Standard

FAMOUS'95



European Radiocommunications Committee (ERC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

Radiocommunications Reports

Frequency band 960 MHz to 105 GHz and associated
European Table of Frequency Allocations and Utilisations

Brussels, June 1994
revised Bonn, March 1995

CEPT REPORT CONCERNING THE FREQUENCY BAND 960 MHz TO 105 GHz AND ASSOCIATED EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS

1. INTRODUCTION

Following the World Administrative Radio Conference in 1992 which allocated spectrum to new services in the 1 - 3 GHz frequency range CEPT began to develop a general plan to promote the harmonised European use of frequencies within the band 1350 - 2690 MHz. Particular importance was attached to the early development of such a general plan in order to provide a framework for the implementation of the decisions of WARC-92 and the consequential changes required, in a harmonised way, throughout CEPT member countries and to provide the necessary guidance for European radio equipment manufacturers to commence production.

Since then CEPT has endorsed the principle of adopting a harmonised European Table of Frequency Allocations and Utilisations by the year 2008. This work is being progressed by the CEPT ERC's European Radiocommunications Office (ERO) through a series of Detailed Spectrum Investigations (DSIs) which consider in turn different frequency ranges. The frequency range 960 - 3400 MHz, however, has not yet been covered by a DSI. In view of the urgency of requiring a common European position in the spectrum between 960 - 3400 MHz and the timescales involved in the production of the DSIs it was decided to take advantage of the work already being undertaken by CEPT for the frequency band 1350 - 2690 MHz by extending the frequency range to cover this broader band. The frequency range 3.4 - 105 GHz was covered by DSI Phase I which has led to an agreed frequency allocation and utilisation plan. The frequency range 29.7 - 960 MHz is covered by DSI Phase II which will be finalised by 1997.

2. EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS

A European Table of Frequency Allocations and Utilisations for the frequency band 960 MHz to 105 GHz expected beyond the year 2008 has been developed and is attached as an Annex to this Report. Although the implementation of this Table has been arranged for the year 2008 it is expected that CEPT member countries will endeavour to implement, as soon as possible, as many parts of the Table as they are able. It is also expected that the Table will be used as a source document by CEPT member countries for the development of Recommendations, Decisions, and European Common Proposals (ECPs) for future Radio Conferences of the ITU dealing with this frequency range.

This Report and its associated table will be reviewed periodically and revised as necessary by the ERC taking into account the results of World Radio Conferences.

3. CEPT- Decisions and Recommendations

During the preparation of the Table due account was taken of work already completed by CEPT in respect of systems expected to operate in this frequency range. The following ERC Decisions and CEPT Recommendations are relevant to this frequency range and have been incorporated into the Table:

- ERC Decision ERC/DEC(92)01 which designates the frequency bands 1670-1675 MHz / 1800-1805 MHz for the Terrestrial Flight Telephone System (TFTS);
- ERC Decision ERC/DEC/(94)03 which designates the frequency band 1880 - 1900 MHz for Digital European Cordless Telecommunications (DECT);
- CEPT Recommendation T/R 22-07 which provides for the introduction and development of Digital Communication Systems (DCS 1800) in the frequency bands 1710-1785 MHz / 1805-1880 MHz on a national basis;

- CEPT Recommendation T/R 13-01 which relates to channel plans to be used by the Fixed Service in the bands 1350-1375 MHz / 1492-1517 MHz, 1375-1400 MHz / 1427-1452 MHz, 2025-2110 MHz / 2200-2290 MHz and 2520-2593 MHz / 2597-2670 MHz;
- CEPT Recommendations T/R 01-04 and T/R 60-01 which provide for the operation of Low Power Devices in the frequency band 2400-2483.5 MHz, 5725 - 5925 MHz, 9200 - 10000 MHz, 10.5 - 10.6 GHz, 13.4 - 14 GHz and 24.05 - 24.25 GHz;
- CEPT Recommendation T/R 10-01 which provides for the operation of Wide Band Data Transmission Systems in the frequency band 2400-2483.5 MHz;
- CEPT Recommendation T/R 52-02 which provides for the introduction of Terrestrial Digital Audio Broadcasting (T-DAB) on a national basis in the frequency band 1452-1492 MHz.
- CEPT Recommendation T/R 22-03 which relates to the band 54.25 - 66 GHz and gives the preliminary use of this band (to be revised);
- CEPT Recommendation T/R 22-04 and ERC/DEC/(92)02 which provide for the operation of Road Transport Information systems in the bands 5795 - 5905 MHz, 63 - 64 GHz and 76 - 78 GHz;
- CEPT Recommendation T/R 22-06 providing frequencies for HIPERLANs in the bands 5150 - 5300 MHz and 17.1 - 17.3 GHz;
- CEPT Recommendation T/R 13-02 which relates to channel plans to be used by the Fixed Service in the bands 22 - 23.6 GHz, 24.5 - 26.5 GHz and 27.5 - 29.5 GHz;
- CEPT Recommendation T/R 12-01 which relates to the channel plan to be used by the Fixed Service in the band 37 - 39.5 GHz;
- CEPT Recommendation T/R 52-01 which provides for the operation of Multipoint Video Distribution Systems (MVDS) in the band 40.5 - 42.5 GHz.

4. MILITARY REQUIREMENTS

Liaison with military authorities from CEPT countries has also been necessary in view of their use of, and requirements in, this frequency range. Although no single representative military body exists for all CEPT member countries, the North Atlantic Treaty Organisation (NATO) has a joint civil/military frequency agreement (JFA) which was felt to be a useful basis from which to develop a view of military frequency requirements. This agreement is currently in the process of revision. A forum that allows both civil and military frequency managers from all CEPT countries to meet has also been established by CEPT. Indications of some military usage are contained in the Table annexed to the Report and others may be included once the revision to the JFA has been agreed by NATO civil and military authorities and then discussed with non-NATO CEPT countries.

Transportable or tactical radio relay systems are an important facet of both civil and military communications. The question of which service they belong to, whether fixed or mobile, has caused considerable discussion within CEPT. For the purpose of this Report these links have been included within relevant fixed service allocations.

5. WARC-92

Due account has also been taken of the relevant decisions of WARC-92 and of strategies developed by other international fora concerning, in particular, the introduction and development of mobile and mobile-satellite services.

The decisions of WARC-92 in allocating spectrum in the 1- 3 GHz band to new, primarily mobile, mobile-satellite and broadcasting services, meant that incompatible existing services, primarily fixed services, would have to be displaced. CEPT has considered this requirement and produced Recommendation T/R 13-01 mentioned above.

WARC-92 included an allocation to the broadcasting-satellite service for digital audio broadcasting in the frequency band 1452-1492 MHz. In a number of CEPT member countries this spectrum would not become available for BSS-Sound until 2007 but there is provision for interim BSS-Sound systems before that date. CEPT is currently considering a request for spectrum for such a system. However there is also interest in some CEPT member countries in using a portion of this frequency band for the introduction of T-DAB and this item has been addressed in Recommendation T/R 52-02 mentioned above. The question of satisfying the competing claims of T-DAB and S-DAB as well as existing services is under consideration by CEPT.

Major items on the agenda of WARC-92 were the provision of spectrum for the mobile-satellite service and the Future Public Land Mobile Telecommunication Systems (FPLMTS) and these requirements have been reflected in the Table.

The decisions of WARC-92 in allocating spectrum in the 3 - 105 GHz band have also been reflected in the table at annex. Account has been taken of the new allocation to the fixed-satellite service in the band 13.75 - 14.0 GHz and footnotes RR 855A and 855B.

The newly allocated broadcasting-satellite service band for HDTV at 21.4 - 22 has also been introduced into the European table. Furthermore, a harmonised approach to the fixed service utilisation in the range 20 - 30 GHz has been agreed to (CEPT Rec. T/R 13-02).

6. FURTHER ACTION

- 6.1. Further work needs to be completed in respect of the provision of spectrum for both the terrestrial and satellite components of FPLMTS and for MSS in general, and on how they should be introduced. Preliminary studies have indicated that the satellite component of FPLMTS could be accommodated in the top 14 MHz of the bands 1980-2010 / 2170-2200 MHz. For spectrum planning purposes, however, it has been agreed that:
 - (a) appropriate parts of the frequency bands 1980-2010 / 2170-2200 MHz should be made available for the Mobile Satellite Service in accordance with the timescale decided by WRC-95,
 - (b) terrestrial FPLMTS should be first introduced at the top of the two bands immediately below 1980 MHz and 2170 MHz whilst,
 - (c) the satellite component of FPLMTS should be introduced from the top of the frequency bands 1980-2010 MHz / 2170-2200 MHz.
- 6.2. Additional commitments to the Table need to be made by CEPT member countries, by developing new Recommendations or Decisions whenever possible, in particular for FPLMTS and MSS.
- 6.3. Discussions should take place with non-CEPT countries on whether the Table could provide the basis for the harmonisation of frequency usage on a global basis.
- 6.4. In relation to 6.3. above, CEPT has informed the United States Federal Communications Commission that the Table (particularly above 40 GHz) will be reviewed on an annual basis and welcomes input from US entities.
- 6.5. Studies concerning sharing between the earth exploration satellite service and the fixed service are required concerning the band 55.2 - 57.2 GHz.

Annex

EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND UTILISATIONS IN THE BAND 960 MHz TO 105 GHz EXPECTED BEYOND THE YEAR 2008

EXPLANATORY NOTES TO THE TABLE

The heading of this table includes five columns, with the following contents:

- Column 1: Frequency Band
Indicates the frequency band referred to in that row of the table
- Column 2: RR Allocations and relevant footnotes
Contains in each frequency band:
- Current RR Art.8 allocations which correspond to Region 1.
 - Current RR Art.8 footnotes relevant to CEPT member countries.
 - Underlined footnotes are additional allocations to one or more CEPT member countries
- Column 3: European Common Allocation (ECA)
Contains in each frequency band:
- Allocations of major use or major interest in CEPT member countries expected beyond 2008.
 - RR Art. 8 footnotes affecting a major number of CEPT countries beyond 2008.
- Column 4: Major utilisations
This column includes where appropriate in each frequency band and for the services allocated in the European Common Allocation:
- The major uses in CEPT member countries expected beyond 2008.
 - Mention of relevant CEPT Recommendation and/or ERC Decisions approved by the ERC.
 - Mention of systems expected to be in use in a major number of CEPT member countries beyond the year 2008.
- Mention of specific utilisations of a given service does not preclude the use of other services mentioned in the European Common Allocation.
- Column 5: Notes
This column indicates where appropriate in each frequency band:
- The date in which the CEPT Recommendations and/or ERC Decisions mentioned in the utilisations have been approved by the CEPT/ERC.
 - The date of entry into force of:
 - a) a specific allocation of the European Common Allocation column
 - b) CEPT Recommendation / ERC Decision mentioned in the utilisations column.
 - c) major utilisation contained in the utilisation column.
 - Any other relevant information

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
38 - 39.50 GHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE Earth Exploration-Satellite (space-Earth)	FIXED FIXED-SATELLITE (space-Earth) Earth Exploration-Satellite (space-Earth)	T/R 12-01: Channel Plan for fixed links 37 - 39.5 MHz Low and medium capacity fixed links for civil and non civil applications Sub bands 37 - 37.142 GHz paired with 38.26 - 38.402 GHz for unplanned, uncoordinated use, subject to national decisions Telecommunications satellites for fixed applications. Priority for civil networks	Recommendation adopted by ERC in 1991
39.50 - 40 GHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) Earth Exploration-Satellite (space-Earth)	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) Earth Exploration-Satellite (space-Earth)	Possible band for broadband mobile system Shared civil and non civil allocation for future space and terrestrial systems	
40 - 40.50 GHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) EARTH EXPLORATION-SATELLITE (Earth-space) SPACE RESEARCH (Earth-space) Earth Exploration-Satellite (space-Earth)	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) SPACE RESEARCH (Earth-space) Earth Exploration-Satellite (space-Earth)	Possible band for broadband mobile system Shared civil and non civil allocation for future space and terrestrial systems	
40.50 - 42.50 GHz	BROADCASTING-SATELLITE /BROADCASTING/ Fixed Mobile	BROADCASTING BROADCASTING-SATELLITE FIXED	T/R 52-01: Multipoint video distribution system	Recommendation adopted by ERC in 1990

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
42.50 - 43.50 GHz	FIXED FIXED-SATELLITE (Earth-space) 901 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 900	FIXED FIXED-SATELLITE (Earth-space) 901 MOBILE except Aeronautical Mobile RADIO ASTRONOMY 900	Future civil fixed and mobile systems Possible band for broadband mobile system Silicon monoxide lines and many other spectral lines in this band Telecommunications satellites for fixed applications. Priority for civil networks	EU 3
43.50 - 45.50 GHz	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903	MOBILE 902 MOBILE-SATELLITE Fixed-Satellite 903	This is a harmonised NATO band for satellite uplinks and mobile systems.	Radionavigation envisaged in some countries
45.50 - 47 GHz		MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903		
47 - 47.20 GHz	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE		
47.20 - 48.50 GHz	FIXED FIXED-SATELLITE (Earth-space) 901 MOBILE 905 904	FIXED FIXED-SATELLITE (Earth-space) 901 MOBILE Amateur 904	Telecommunications satellites for fixed applications. Priority for civil networks Feeder links for 40 GHz broadcasting satellites ENG/OB is envisaged	
48.50 - 50.20 GHz		FIXED FIXED-SATELLITE (Earth-space) 901 RADIO ASTRONOMY 904 905	Low and medium capacity fixed links Telecommunications satellites for fixed applications. Priority for civil networks Feeder links for broadcasting satellites 48.5 - 49.2 GHz Carbon monosulphide line 48.94 - 49.04 GHz ENG/OB is envisaged	EU 3

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
50.20 - 50.40 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive)		
50.40 - 51.40 GHz	FIXED FIXED-SATELLITE (Earth-space) MOBILE Mobile-Satellite (Earth-space)	FIXED FIXED-SATELLITE (Earth-space) Mobile-Satellite (Earth-space)	Low and medium capacity fixed links Telecommunications satellites for fixed applications. Priority for civil networks	
51.40 - 54.25 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY 907		EU 3,6
54.25 - 55.20 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY 907		EU 3,6
55.20 - 57.20 GHz	MOBILE 909 SPACE RESEARCH (passive) 908	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE SPACE RESEARCH (passive) Radio Astronomy 908 909	Low and medium capacity fixed links. (1.47 GHz forward/return separation). Intended for support infrastructure for large scale mobile networks T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems	EU 3 Allocation to Fixed service within the band 55.2 - 55.78 GHz is subject to sharing studies. In the interim period frequencies should only be assigned to the Fixed Service starting from the top of the band 55.2 - 57.2 GHz. Recommendation adopted by ERC in 1990, to be revised
57.20 - 58.20 GHz		EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) Radio Astronomy 908 909	Low power short range fixed and mobile systems (frequency planning not required) T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems	EU 3 Recommendation adopted by ERC in 1990, to be revised

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
58.20 - 59 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	EARTH EXPLORATION-SATELLITE (passive) FIXED RADIO ASTRONOMY SPACE RESEARCH (passive) 907		EU 3,6 Fixed service and EU3 are included, but are subject to an appropriate outcome at WRC97
59 - 62 GHz	FIXED INTER-SATELLITE MOBILE 909 RADIOLOCATION 910 911	FIXED INTER-SATELLITE RADIOLOCATION 910 909 911	T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems Cordless local area networks ISM 61 - 61.5 GHz Low and medium capacity fixed links. (1.47 GHz forward/return separation based on plan for 54.25 - 57.2 GHz) Short range non civil radiolocation	Recommendation adopted by ERC in 1990
62 - 63 GHz		INTER-SATELLITE MOBILE RADIOLOCATION 909 910	T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems Short range non civil radiolocation Broadband mobile systems for connection to IBCN paired with 65 - 66 GHz	Recommendation adopted by ERC in 1990
63 - 64 GHz		INTER-SATELLITE MOBILE RADIOLOCATION 909 910	Short range non civil radiolocation T/R 22-04: Road Transport Telematics (RTT vehicle to road/vehicle to vehicle), ERC/DEC/(92)02 T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems	Decision adopted by ERC in 1992 Recommendation (T/R 22-03) adopted by ERC in 1990 Recommendation (T/R 22-04) adopted by ERC in 1991
64 - 65 GHz	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) RADIO ASTRONOMY 907		EU 3,6

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
65 - 66 GHz	EARTH EXPLORATION-SATELLITE SPACE RESEARCH Fixed Mobile	EARTH EXPLORATION-SATELLITE MOBILE SPACE RESEARCH	T/R 22-03: Provisional recommended use of the frequency range 54.25 - 66 GHz by terrestrial fixed and mobile systems Broadband mobile systems for connection to IBCN paired with 62 - 63 GHz	Recommendation adopted by ERC in 1990
66 - 71 GHz	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903	Future civil systems	
71 - 74 GHz	FIXED FIXED-SATELLITE (Earth-space) MOBILE MOBILE-SATELLITE (Earth-space) 906	FIXED FIXED-SATELLITE (Earth-space) MOBILE MOBILE-SATELLITE (Earth-space) RADIO ASTRONOMY 906	Formaldehyde line 72.77 - 72.91 GHz Future non civil systems Pairing of this band with 81 - 84 GHz is envisaged in military systems	
74 - 75.50 GHz	FIXED FIXED-SATELLITE (Earth-space) MOBILE Space Research (space-Earth)	FIXED FIXED-SATELLITE (Earth-space) MOBILE Space Research (space-Earth)	Future civil systems	
75.50 - 76 GHz	AMATEUR AMATEUR-SATELLITE Space Research (space-Earth)	AMATEUR AMATEUR-SATELLITE Space Research (space-Earth)		
76 - 78 GHz	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-Earth)	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-Earth)	Civil radiolocation T/R 22-04: 76 - 77 GHz RTT (Radar), ERC/DEC/(92)02	Recommendation adopted by ERC in 1991 Decision adopted by ERC in 1992
78 - 81 GHz	912	RADIOLOCATION Amateur Amateur-Satellite Earth Exploration-Satellite (active) Space Research (space-Earth) 912	Civil and non civil radiolocation	

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
81 - 84 GHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) Space Research (space-Earth)	FIXED FIXED-SATELLITE (space-Earth) MOBILE MOBILE-SATELLITE (space-Earth) Space Research (space-Earth)	Pairing of this band with 71 - 74 GHz is envisaged in military systems	
84 - 86 GHz	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE 913	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE 913		
86 - 92 GHz	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 907	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 907	Continuum measurements	EU 3,6
92 - 95 GHz	FIXED FIXED-SATELLITE (Earth-space) MOBILE RADIOLOCATION 914	FIXED FIXED-SATELLITE (Earth-space) MOBILE RADIOLOCATION Radio Astronomy 914	Diazenytium line and numerous other spectral lines Short range radiolocation	
95 - 100 GHz	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 903 904	MOBILE 902 MOBILE-SATELLITE RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 903 904	Multiple line Observations Continuum observations	EU 3
100 - 102 GHz	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 722	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 722		

Frequency band	RR Allocations and relevant footnotes	European Common Allocation (ECA)	Major utilisation	Notes
102 - 105 GHz	FIXED FIXED-SATELLITE (space-Earth) MOBILE 722	FIXED FIXED-SATELLITE (space-Earth) MOBILE 722		

EU FOOTNOTES

- EU1** In the sub-bands 3400 - 3410 MHz, 5660 - 5670 MHz, 10.36 - 10.37 GHz, 10.45 - 10.46 GHz the amateur service operates on a secondary basis. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these sub-bands in such a way as to facilitate the reception of amateur emissions with minimal power flux densities.
- EU2** In the sub-bands 5660 - 5670 MHz (earth to space), 5830 - 5850 MHz (space to earth) and 10.45 - 10.50 GHz the amateur-satellite additionally operates on a secondary and non interference basis to other services. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these allocations in such a way as to facilitate the reception of amateur emissions with minimal power flux densities.
- EU3** This band is allocated to the radio astronomy service. CEPT administrations are urged to take all practicable steps to protect the radioastronomy service from harmful interference. Emissions from space or airborne stations in this and adjacent bands can cause serious harmful interference.
- EU4** The band 5250 - 5850 MHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration in particular to identify a secondary allocation for the fixed service to accommodate transportable ENG and remote camera applications.
- EU5** The band 8500 - 10000 MHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration in conjunction with the band 5250 - 5850 MHz (see EU4).
- EU6** All emissions in this band are prohibited.
- EU7** The band 13.25 - 14.0 GHz is utilised for a variety of radiodetermination applications falling within the radionavigation and radiolocation services. This band will be subject to further detailed consideration.
- EU8** This aeronautical radionavigation band shall be subject to further study to ascertain future requirements and developments.
- EU9** This fixed service band is designated for common use by civil and non civil users. Any user priorities in respect of preferred channels or sub-bands are to be determined after discussions between interested parties.
- EU10** Reference to the Glonass system is made in recognition of its existence, but is not supported as a major use in Europe
- EU11** On introduction of FPLMTS, the fixed service will become secondary in appropriate parts of the band.

RR Article 8 Footnotes (in European Common Allocation column)

664

In the bands 435 - 438 MHz, 1 260 - 1 270 MHz, 2 400 - 2 450 MHz, 3 400 - 3 410 MHz (in Regions 2 and 3 only) and 5 650 - 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 435). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 2741. The use of the bands 1 260 - 1 270 MHz and 5 650 - 5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

709

The band 960 - 1 215 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.

710

Use of the radionavigation-satellite service in the band 1 215 - 1 260 MHz shall be subject to the condition that no harmful interference is caused to the radionavigation service authorized under No. 712.

712

Additional allocation: in Algeria, the Federal Republic of Germany, Austria, Bahrain, Belgium, Benin, Burundi, Cameroon, China, Denmark, the United Arab Emirates, France, Greece, India, Iran, Iraq, Kenya, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, Pakistan, the Netherlands, Portugal, Qatar, Senegal, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Tanzania, Turkey and Yugoslavia, the band 1 215 - 1 300 MHz is also allocated to the radionavigation service on a primary basis.

713

In the bands 1 215 - 1 300 MHz, 3 100 - 3 300 MHz, 5 250 - 5 350 MHz, 8 550 - 8 650 MHz, 9 500 - 9 800 MHz and 13.4 - 14.0 GHz, radiolocation stations installed on spacecraft may also be employed for the earth exploration-satellite and space research services on a secondary basis.

717

The use of the bands 1 300 - 1 350 MHz, 2 700 - 2 900 MHz and 9 000 - 9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

718

In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the spectral line observations of the radio astronomy service from harmful interference in the band 1 330 - 1 400 MHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

720

The bands 1 370 - 1 400 MHz, 2 640 - 2 655 MHz, 4 950 - 4 990 MHz and 15.20 - 15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.

721

All emissions in the band 1 400 - 1 427 MHz are prohibited.

722

In the bands 1 400 - 1 727 MHz, 101 - 120 GHz and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin.

722A

WARC-92

Use of the band 1 452 - 1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92).

722B

WARC-92

Different category of service: in the Federal Republic of Germany, Bangladesh, Botswana, Bulgaria, Burkina Faso, Colombia, Cuba, Denmark, Egypt, Ecuador, Spain, Greece, Hungary, Ireland, Italy, Jordan, Kenya, Malawi, Mozambique, Panama, Poland, Portugal, United Kingdom, Sri Lanka, Sweden, Swaziland, Czech and Slovak Federal Republic, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1 452 - 1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

726A

WARC-92

The bands 1 525 - 1 544 MHz, 1 545 - 1 559 MHz, 1 626.5 - 1 645.5 MHz and 1 646.5 - 1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

726B

WARC-92

The use of the bands 1 525 - 1 530 MHz, 1 533 - 1 544 MHz, 1 626.5 - 1 631.5 MHz and 1 634.5 - 1 645.5 MHz by the land mobile-satellite service is limited to non-speech low bit-rate data transmissions.

726D

WARC-92

The use of the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz by the mobile-satellite services are subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). In Regions 1 and 3 in the band 1 525 - 1 530 MHz coordination of space stations of the mobile-satellite services with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2586. In respect of assignments operating in the band 1 525 - 1 530 MHz, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

727A

Mob-87

The use of the band 1 544 - 1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article N 38).

729

Transmissions in the band 1 545 - 1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

729A

Mob-87

Notwithstanding any other provisions of the Radio Regulations relating to restrictions in the use of the bands allocated to the aeronautical mobile-satellite (R) service for public correspondence, the bands 1 545 - 1 555 MHz and 1 646.5 - 1 656.5 MHz may be authorized by administrations for public correspondence with aircraft earth stations. Such communications must cease immediately, if necessary, to permit transmission of messages with priority 1 to 6 in Article 51.

730A

Mob-87

In the bands 1 555 - 1 559 MHz and 1 656.5 - 1 660.5 MHz administrations may also authorize aircraft earth stations and ship earth stations to communicate with space stations in the land mobile-satellite service (see Resolution 208 (Mob-87)).

731E

WARC-92

The use of the band 1 610 - 1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). A mobile earth station operating in either of the services in this band shall not produce an e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 732, unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, a value of -3 dB(W/4 kHz) is applicable. Stations of the mobile-satellite service shall not cause harmful interference to, or claim protection from, stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 732 and stations in the fixed service operating in accordance with the provisions of No. 730.

733

The bands 1 610 - 1 626.5 MHz, 5 000 - 5 250 MHz and 15.4 - 15.7 GHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis. Such use is subject to agreement obtained under the procedure set forth in Article 14.

733A

WARC-92

With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 953 do not apply in the frequency band 1 610 - 1 626.5 MHz.

733B**Mob-87**

Different category of service: in Angola, Australia, Burundi, Côte d'Ivoire, Ethiopia, India, the Islamic Republic of Iran, Israel, Italy, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Zaire and Zambia the allocation of the band 1 610 - 1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 425) subject to agreement obtained under the procedure set forth in Article 14 with other countries not listed in this provision.

733E**WARC-92**

Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services. (No. 2904 applies.)

733F**Mob-87**

In Region 1, the bands 1 610 - 1 626.5 MHz (Earth-to-space) and 2 483.5 - 2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis.

734**WARC-92**

In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service in the band 1 610.6 - 1 613.8 MHz from harmful interference. Emissions from space or air-borne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

734A**Mob-87**

Land earth stations and ship earth stations in the mobile-satellite service operating in the bands 1 631.5 - 1 634.5 MHz and 1 656.5 - 1 660 MHz shall not cause harmful interference to the stations in the fixed service operating in the countries listed in No. 730.

734B**Mob-87**

The use of the band 1 645.5 - 1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article N 38).

735**Mob-87**

Transmissions in the band 1 646.5 - 1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

736

In making assignments to stations of other services to which the band 1 660 - 1 670 MHz is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

739

In view of the successful detection by radio astronomers of two hydroxyl spectral lines in the region of 1 665 MHz and 1 667 MHz, administrations are urged to give all practicable protection in the band 1 660.5 - 1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4 - 1 668.4 MHz as soon as practicable.

740A**WARC-92**

The bands 1 670 - 1 675 MHz and 1 800 - 1 805 MHz are intended for use, on a worldwide basis, by administrations wishing to implement aeronautical public correspondence. The use of the band 1 670 - 1 675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1 800 - 1 805 MHz is limited to transmissions from aircraft stations.

744

The band 1 718.8 - 1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. In making assignments to stations of other services to which the band is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

746A**WARC-92**

The bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the future public land mobile telecommunication systems (FPLMTS). Such use does not preclude the use of these bands by other services to which these bands are allocated. The frequency bands should be made available for FPLMTS in accordance with Resolution 212 (WARC-92).

746B**WARC-92**

The use of the bands 1 970 - 2 010 MHz and 2 160 - 2 200 MHz by the mobile-satellite service shall not commence before 1 January 2005 and is subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). In the band 2 160 - 2 200 MHz coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2566. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

747A**WARC-92**

In making assignments to the mobile service in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, administrations shall take into account Resolution 211 (WARC-92).

750A**WARC-92**

Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

752

The band 2 400 - 2 500 MHz (centre frequency 2 450 MHz) is designated for industrial, scientific and medical (ISM) applications. Radio services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.

753C**WARC-92**

Different category of service: in Angola, Australia, Bangladesh, Burundi, China, Côte d'Ivoire, Ethiopia, India, the Islamic Republic of Iran, Israel, Italy, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Zaire and Zambia, the allocation of the band 2 483.5 - 2 500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 425) subject to agreement obtained under the procedure of Article 14 with other countries not listed in this provision.

754**WARC-92**

Subject to agreement obtained under the procedure set forth in Article 14, the band 2 520 - 2 535 MHz (until 1 January 2005 the band 2 500 - 2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The coordination and notification procedures set forth in Resolution 46 (WARC-92) apply. However, coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced by the station exceeds the limits in No. 2566.

760A**WARC-92**

The allocation of the frequency band 2 500 - 2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). Coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2566. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

764A**WARC-92**

The allocation of the frequency band 2 670 - 2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing mobile-satellite systems in this band administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with Resolution 46 (WARC-92).

765

In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference in the band 2 655 - 2 690 MHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

766**WARC-92**

Subject to agreement obtained under the procedure set forth in Article 14, the band 2 655 - 2 670 MHz (until 1 January 2005 the band 2 655 - 2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The coordination and notification procedures set forth in Resolution 46 (WARC-92) apply.

768

All emissions in the band 2 690 - 2 700 MHz are prohibited, except those provided for by Nos. 767 and 769.

770

In the band 2 700 - 2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.

772**Mob-87**

In the band 2 900 - 3 100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2 930 - 2 950 MHz.

773

The use of the band 2 900 - 3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

775A**Mob-87**

In the bands 2 900 - 3 100 MHz and 9 300 - 9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 347 of these Regulations.

778

In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the spectral line observations of the radio astronomy service from harmful interference in the bands 3 260 - 3 267 MHz, 3 332 - 3 339 MHz, 3 345.8 - 3 352.5 MHz and 4 825 - 4 835 MHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

785

In Denmark, Norway and the United Kingdom, the fixed, radiolocation and fixed-satellite services operate on a basis of equality of rights in the band 3 400 - 3 600 MHz. However, these Administrations operating radiolocation systems in this band are urged to cease operations by 1985. After this date, these Administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

788

Additional allocation: in the Federal Republic of Germany, Denmark, Norway and Sweden, the band 4 200 - 4 210 MHz is also allocated to the fixed service on a secondary basis.

789

Use of the band 4 200 - 4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).

791

The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies and shall be subject to agreement obtained under the procedure set forth in Article 14.

792A

Orb-88

The use of the bands 4 500 - 4 800 MHz, 6 725 - 7 025 MHz, 10.7 - 10.95 GHz, 11.2 - 11.45 GHz and 12.75 - 13.25 GHz by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B.

795

In making assignments to stations of other services to which the band 4 990 - 5 000 MHz is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 38).

796

The band 5 000 - 5 250 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band.

797

Mob-87

The bands 5 000 - 5 250 MHz and 15.4 - 15.7 GHz are also allocated to the fixed-satellite service and the inter-satellite service, for connection between one or more earth stations at specified fixed points on the Earth and space stations, when these services are used in conjunction with the aeronautical radionavigation and/or aeronautical mobile (R) service. Such use shall be subject to agreement obtained under the procedure set forth in Article 14.

797A

Mob-87

Additional allocation: in the countries listed in Nos. 733B and 753C, and subject to agreement obtained under the procedure set forth in Article 14, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 733B and 753C, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610 - 1 626.5 MHz and/or 2 483.5 - 2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dBW/m² in any 4 kHz band for all angles of arrival.

797B

WARC-92

Additional allocation: in the Federal Republic of Germany, Austria, Belgium, Denmark, Spain, France, Finland, Greece, Israel, Italy, Japan, Liechtenstein, Luxembourg, Malta, Jordan, Morocco, Norway, the Netherlands, Pakistan, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Tunisia, the band 5 150 - 5 250 MHz is also allocated to the mobile service, on a primary basis, subject to the agreement obtained under the procedure set forth in Article 14.

798

WARC-92

Additional allocation: in Austria, Bulgaria, Libya, Mongolia, Poland, the German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 5 250 - 5 350 MHz is also allocated to the radionavigation service on a primary basis.

799

The use of the band 5 350 - 5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

800

WARC-92

Additional allocation: in Afghanistan, Austria, Bulgaria, Iran, Mongolia, Poland, the German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 5 470 - 5 850 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

801

Additional allocation: in the United Kingdom, the band 5 470 - 5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. 2502, 2505, 2506 and 2507 shall apply in the band 5 725 - 5 850 MHz.